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RECENT CAPTURES OF *ANTHOCHARIS CETHURA CATALINA* MEADOWS

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THE CATALINA ORANGE-TIP, *Anthocharis cethura catalina* (Pieridae), was described by Meadows (1936) from a series of eight males and four females, collected from 1928-1933 at various locations on Santa Catalina Island, California (Grand Canyon, White's Landing, Renton Mine area, Salta Verde, and Little Harbor). The holotype (from Grand Canyon) and allotype are currently in the Natural History Museum of Los Angeles County collection, and a series of paratypes (one male, two females) are in the University of California, Irvine Collection (Charles Rudkin collection). Other paratypes are housed in a portion of the Don Meadows collection, currently at the Bower's Museum (Santa Ana, California). Strangely enough, over forty years later, these twelve specimens were still the only known (or publicized) representatives of this subspecies. Some Lepidopterists had postulated that the subspecies may have become extinct in the intervening years since its description (Emmel and Emmel, 1973). In fact, at the time of this writing, the Office of Endangered Species (Washington, D. C.) was investigating the possibility of placing the Catalina Orange-tip on the Endangered Species List (Federal Register, 40(55):12691).

On a recent trip to the island, the author was able to verify the continued existence of *Anthocharis cethura catalina* and dispel any rumors to the contrary. Since almost nothing is known about the habits of this small desert butterfly which managed to attain an island foothold, it seems worthwhile to add my observations in the hopes that other Lepidopterists will be moved to initiate other studies on this local subspecies.

The author, accompanied by another collector (C. R. Roseland), visited the Avalon area on 20 April, 1975, collecting from 1100 to 1530 PST (daylight savings). Calm, warm (74° F.)

weather prevailed, the sun being obscured but briefly during this time by haze. Meadows (1936) had stated that "the most accessible locality where *catalina* may be collected is a small, open meadow at the top of a ridge between Renton Mine and Jewfish Point, two miles south of Avalon." Thus, it was decided to try to reach this locality.

We started a grueling cross-country hike up the steep hills south of Avalon, moving up a fire break at the top of the second ridge from the ocean. Not one butterfly was seen during the first hour of hiking. However, as the sun warmed the island, a few *Celastrina argiolus echo* (Lycaenidae) began to fly in the chaparral areas. The first Catalina Orange-tip (so we assumed) was sighted at time 1215, flying along the steep south-west slope of the ridge, at an elevation of 500 feet. The slope, covered with a rich carpet of grass and other annuals at this time of year, also had vigorous growths of California Sage (*Artemesia californica*), with some sumac (*Rhus laurina*) and *Opuntia* also present. The specimen which was sighted proved impossible to collect. We continued up the ridge via the firebreak until we reached an elevation of approximately 650 feet. It was then that I saw the first Avalon Hairstreak of the day (*Strymon avalona*). At the same time, however, we sighted two orange-tips flying up the northeast slope and over the ridge. Neglecting *avalona*, we managed to capture both butterflies in flight, and a glance at the ventral wing pattern left no doubt that we had just captured *cethura catalina*! The specimens captured turned out to be two males. We continued up the ridge to an elevation of about 1100 feet without additional captures of the Catalina Orange-tip, although we observed or captured a few *avalona* flying about the long-dead blossoms of *Rhus laurina*, one Orange-tip, *Anthocharis sara gunderi* (another island endemic), two *Papilio zelicaon*, and 2-3 additional orange-tips that may have been *catalina*. When the ridge twisted, facing South, we followed, sighting perhaps 2-4 *Anthocharis*, although none could be captured, due to their swift and erratic flight over the rough terrain.

As we started hiking in the southern direction, down a ridge adjacent to the southwest of the one on which we had captured our first *catalina* (a course leading back to Avalon, as we no longer had time to pursue our hike to the Meadows locality near Renton Mine), we began to see considerably more *Anthocharis*. This ridge was covered with dense impenetrable chaparral flora,

broken only occasionally by grassy areas. The majority of the orange-tips captured, however, were *A. sara gunderi*. However, at an elevation of 1100 feet (time approximately 1445), a male and female *catalina* were seen flying up the slope and were captured. The female was somewhat aberrant in that the normal dorsal orange marking was considerably reduced, being retained only along the veins in the subapical area, giving a somewhat streaked appearance. Both specimens were in fresh condition.

The remainder of the trip proved uneventful.

Several statements can be given concerning the habits and status of *cethura catalina*, even though our excursion to *catalina*'s habitat was brief. First and foremost, the Catalina Orange-tip is still extant on Santa Catalina Island. Additionally, fear that the subspecies was presently endangered appears unfounded. The butterfly was found on two ridges, half a mile apart, adding to the already know extensive, although spotty distribution of the subspecies on the island (see Figure 1). The Catalina Orange-tip may probably be expected to occur on many, if not most, of the rather inaccessible ridges in the area near Avalon. We should note that the butterfly has managed for years to survive the onslaught of the environment by goats (introduced by the Spanish hundreds of years ago) and wild boars, and it is doubtful that the butterfly will succumb to any analogous habitat changes (grazing, recreational use). Indeed, the butterflies seemingly were not affected at all by the defoliated firebreak up the first ridge, and were sighted more often on this ridge than on the more natural appearing adjacent ridge. Further observations on the populations, however, are required before the true status of the subspecies can be determined. Commercial development is not being planned for any *catalina* habitats, most of the island now being a preserve, and thus the butterfly is probably in no danger for many years to come.

No strong hilltopping behavior was observed. Perhaps as many individuals were seen fifty or more feet down the slopes of the ridges as were seen anywhere near the top, hence why so few specimens could be procured. The erratic flight typical of *cethura*, however, was observed in *catalina*.

The date of our captures is of interest, particularly in regard to the freshness of specimens. Meadows (1936) captured *catalina* from March 23 to April 9, his last capture being almost two weeks previous to ours. The flight period given by Emmel and Emmel (1973) and Meadows (1936) should thus probably be

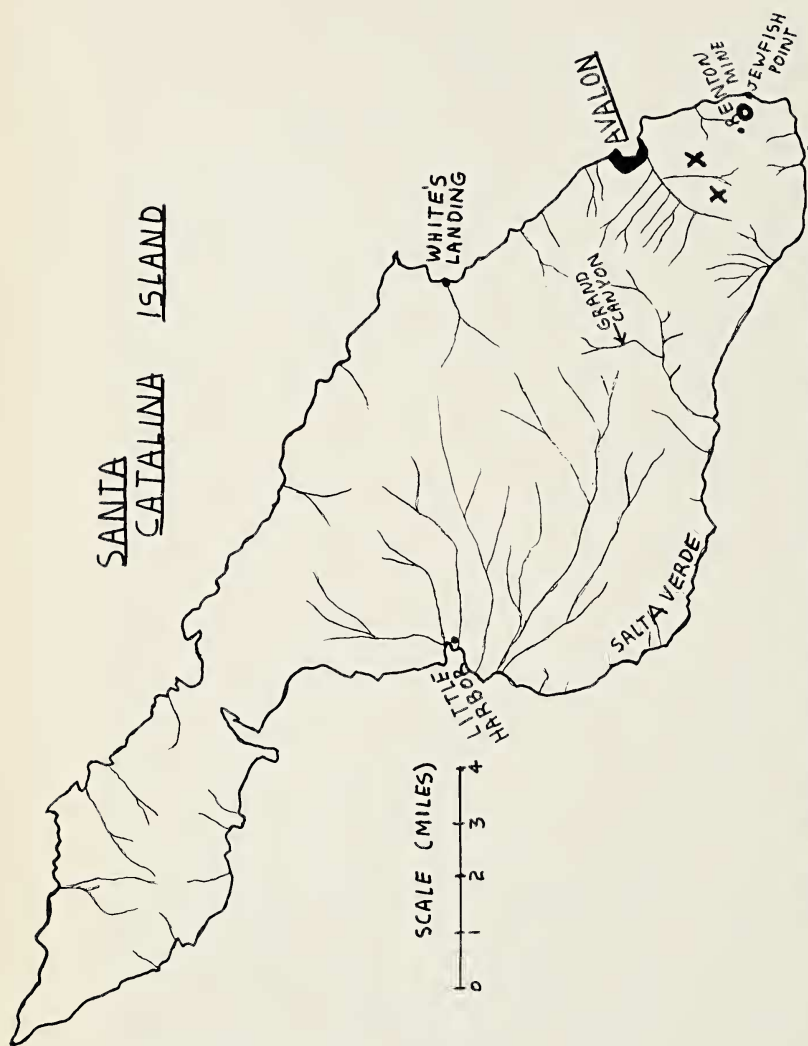


Fig. 1.—Santa Catalina Island, California, indicating localities where *Anthocharis cethura catalina* has been captured. (X) designates recent capture localities by the author, (O) designates Meadows' collection localities. Specific localities at Little Harbor, Salta Verde, Grand Canyon, and White's Landing are not given in Meadows (1936) or on labels accompanying specimens in the type series.

amended to read "late March to late April". Late Spring rains in 1975, however, could have caused an unusual delay in the adult emergence of *catalina*, as such delays were reported for many southern California butterflies during this season.

It is rather surprising that captures of the Catalina Orange-tip have not been reported in so many years, although numerous Lepidopterists have visited Santa Catalina Island in order to procure specimens of the other two endemic butterflies found on the island. This may be attributed to the past and present inaccessibility of *catalina* habitats (physical and/or legal), short flight period of adults, possible confusion with *Anthocharis sara gunderi*, and the tendency of local collectors not to exert much effort searching for a relatively unspectacular-appearing butterfly (versus the amount of effort expended to find the legendary lost Atossa Fritillary, *Speyeria adiaspe atossa*, of southern California).

I would like to acknowledge the help of Mr. Craig Roseland in securing specimens, Mr. John Haynie, our pilot to the island, and the Xerces Society, which has provided financial and moral support for studies in rare and endangered southern California Rhopalocera. A voucher specimen of *cethura catalina* from this trip will be deposited in the collection of the Natural History Museum of Los Angeles County.

AUTHOR'S NOTE: Three additional records of the Catalina Orange-tip came to light as a result of the distribution of preliminary drafts of the above article, but were received after the article went to press. Dr. Charles Remington informs me of the existence of two specimens collected by Charles Ingham and purchased through the Ingham collection, now housed at Yale University. The only *recent* record to come to light in addition to my collecting experiences is that of Dr. Jerry Powell of the University of California, Berkeley, and Dr. Paul Opler (presently of the Office of Endangered Species, Washington, D.C.). On April 1, 1968, a specimen of *catalina* was taken by them at Little Harbor during a lull in generally bad weather. This fairly recent capture indicates the continued existence of *catalina* from more than one locality on Santa Catalina Island.

LITERATURE CITED

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